

Personal maturity of sick and healthy people and its relationship to gender, age and anthropometric indicators

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Abstract

Introduction. In last decade, a debate about the dependence of human health on its spirituality has been conducted. The results of numerous studies do not give an unambiguous answer about the existence of such a relationship. One of the ways to study spirituality may be an assessment of the level of internal development (maturity) of man as individual. **Goal:** To determine the level of personal maturity of examined persons and establish its relationship to gender, age and anthropometric indicators. **Material and methods.** 560 persons, of whom 301 were men (53.75%) and 269 women (46.25%). The mean age of examined persons was ($M \pm S$) 35.00 ± 17.75 (95% confidence interval: 33.52 – 36.47) years. There were 337 patients (60.18%) suffering from chronic diseases, and 223 (39.82%) healthy persons (university students). Height and body weight were measured. To determine the levels of personal maturity, a survey was conducted by method of Jose Stevens. Using the levels of maturity proposed by the author ("infant", "toddler", "child", "teenager/young man" and "adult"), low, medium, high, undifferentiated and combined levels of personal maturity were formed, which were considered stages of spiritual development. **Results.** It was established that 53.39% (299/560) of examined persons had high levels, and 35.54% (199/560) – low levels of personal maturity / spirituality. The relationship between the level of personal maturity / spirituality of a person and the gender ($p = 0.00000$), age ($p = 0.00001$) and body weight ($p = 0.0950$) of examined persons was established. Women are more likely to have a larger number of high levels of personal maturity in comparison with men. An undifferentiated level of maturity was more often registered in men. The predominance of undifferentiated and low levels of personal maturity is more common in older persons (aged 60 years and over) than in young people (less than 18 years of age). No relationship of personal maturity to body length was established, but it was related to body weight: people with a body mass of 90-99 kg had a low level of maturity compared to persons who had a body mass less than 60 kg. Besides that, medium-high levels of maturity is more intrinsic to people weighing less than 60 kg. **Conclusions.** High levels of personal maturity / spirituality are more intrinsic to women, young people (under 18) and people with low body mass (less than 60 kg).

Key words: maturity of person, spirituality, health, gender, body mass, body length.

Introduction

Human health, as defined by the World Health Organization, is a multicomponent phenomenon, and one of its components is a mental (spiritual) well-being (Constitution of the World Health Organization, 1946). Numerous data on the relationship between the health of people and their age, gender and anthropometric parameters are currently available. It is known that the aging of an individual leads to an increase in the number of diseases from which he/she suffer (Zhemaitite et al. 1998; Jiang, Holmes, & McVean, 2021; Tuttle, Luesken, Waaijer, & Maier, 2021); men and women differ not only in genital diseases, but also in the presence and different course of other diseases (Kittnar, 2020; Gargaglioni, Marques, & Patrone, 2019; Costa et al., 2020; Schwinge, & Schramm, 2019). It is proved that weight gain is a cause of appearance and development of circulatory diseases, musculoskeletal disorders, etc. (Sun, Tan, Rexiati, Dong, & Guo, 2019; Yamakawa, Kusumoto, Hashimoto, & Yuasa, 2020; Savvidis, Tournis, & Dede, 2018). Some studies have also been conducted that show a link between the physical component of health and the social (Frier, Barnett, & Devine, 2017; Hodgson, Watts, Fraser, Roderick, & Dambha-Miller, 2020; Muscatell, 2018) and spirituality (Savchenko et al., 2019; Steinhorn, Din, & Johnson, 2017; Kalra et al., 2018; Abu et al., 2018) components.

The relationship between spirituality health and biological parameters (age, sex) and physical health indicators of man has been studied to a lesser extent. Today, there are some studies that link the various aspects of human spirituality to gender, anthropometric parameters, and various performance indicators (Rosmarin, Wachholtz, & Ai, 2011; Litalien, Atari, & Obasi, 2021).

First of all, some qualitative differences in the understanding of spirituality and religiosity by young and adult people, men and women have been established. With aging, the spirituality is more associated with a moral

and ethical, religious content of personal experiences and actions, while in adolescents and young people, the spirituality is more associated with the state of inner peace (Galljamova, & Lopuhova, 2016). Feizi, Nasiri, Bahadori, Amiri, & Mirhosseini (2020), exploring the relationship between spiritual well-being and happiness in medical students included in the study, have found a significant correlation of some domains of spiritual well-being with age, sex, marital status and education. Deb, McGirr, & Sun (2016) also established a dependence between spirituality and sex in university students. The relationship between spirituality / religiosity and sex in sick people was reported by Rohde et al. (2019), Lewis, Salins, Rao, & Kadam (2014), Reyes-Ortiz, Payan, Altamar, Gomez, & Koenig (2019) and others.

The scientific literature contains the data on a possible relationship between the level of spirituality and age of man. Musarezia, Naji-Esfahani, Ghasemi, Karimian, & Ebrahimi (2013), Silva et al. (2019), Reyes-Ortiz, Payan, Altamar, Gomez, & Koenig (2019) reported about the correlation between a spirituality/ religiosity level and the age in sick people, and – Ricci-Allegra (2018) – in healthy people.

As for the relationship between the level of spirituality / religiosity and anthropometric indicators, some research studies have been found that show the relationship between spirituality and body mass or metabolic syndrome. Brintz et al. (2017), Godbolt, Vaghela, Burdette, & Hill (2018), Bharmal et al. (2013), Sanlier, Pehlivan, Sabuncular, Bakan, & Isguzar (2018), Boisvert, & Harrell (2013) and others reported the data on the existence of such a relationship over the past decade.

However, Reeves, Adams, Dubbert, Hickson, & Wyatt (2012) indicated that they did not observe a significant relationship between religiosity / spirituality and body mass of the examined Afro-Americans. Tull, Doswell, & Cort (2015) also pointed out the absence of such a relationship, but emphasized that the presence of higher spirituality weakens the association of psychosocial stress related to waist circumference.

The connection of spirituality / religiosity to functional indicators of the cardiovascular system was reported by Tettey, Duran, Andersen, & Boutin-Foster (2017), who reported about positive effects on cardiovascular health and body weight by a 12-week training to study the basics of cardiovascular disease with the inclusion of biblical scriptures for devotional people.

The above-mentioned results of scientific research on the relationship of spirituality / religiosity to health are not always unambiguous and understandable, and are often controversial (Rosmarin, Wachholtz, & Ai, 2011; Litalien, Atari, & Obasi, 2021). For example, Reig-Ferrer et al. (2012) did not find the relationship of indicators of spirituality to sex or age in patients requiring hemodialysis. Rabow, & Knish (2015) did not establish any associations of spiritual well-being with age, sex, race, or stage of oncological disease in patients requiring palliative care. Kattimani, Sarkar, Bharadwaj & Rajkumar (2015) reported the data on the absence of the relationship between the level of spirituality and sex in medical students. Therefore, the question of establishing the relationship of level of spirituality to various components of health needs further study. In light of the fact that spirituality is a multifaceted phenomenon and represents the internal development of man, the study of spirituality and its relationship to health is possible through the use of various questionnaires that reflect the level of internal development (maturity) of man as individual.

Purpose of study – to determine the level of personal maturity of examined persons and to establish its relationship to gender, age and anthropometric indicators.

Material & methods

Study participants. The study was conducted among the patients with chronic diseases and the consequences of injuries that required medical rehabilitation in the hospital, and among the students of the Humanities University, who according to medical conclusions were healthy people. Criteria for inclusion in the study were: age of examined persons from 17 to 79 years inclusive; patients with any chronic illness or injuries with health consequences; young people, students of the Humanities University, without chronic illnesses or injuries with health consequences.

In all, 560 persons were selected and examined. There were 301 men (53.75%) and 269 women (46.25%). The mean age of examined persons was ($M \pm S$) 35.00 ± 17.75 (95% confidence interval (CI): 33.52-36.47) years. According to age periods, the participants were distributed as follows: less than 20 years - 145 (25.89%), 20-29 years - 143 (25.54%), 30-39 years - 59 (10.54%), 40-49 years - 84 (15.00%), 50-59 years - 53 (9.46%), 60-69 years - 48 (8.57%), 70-79 years - 26 (4.64%). There were 337 patients (60.18%) suffering from chronic diseases and 223 (39.82%) healthy persons (university students).

“An informed consent to participate in the study was obtained from examined persons. The protocol of the study was considered and approved at the meeting of the Commission on Ethics of the Faculty of Health, Physical Education and Sports of the Kyiv University named after Borys Grynchenko. The study was in full compliance with the principles of the World Medical Association's Declaration of Helsinki "Ethical Principles for Medical Research involving Human Subjects".

Organization (design) and research methods. A single-center prospective cross-sectional randomized observational study was conducted. The study was performed during 2018-2020. The examination of selected persons was carried out with their consent. By anthropometric methods a body length and mass was measured. The level of personal maturity was determined according to test by Jose Stevens (2019). His test in Russian and

Ukrainian versions was used. This test allows to estimate the level of maturity of consciousness and self-awareness of man, which are considered components of an individual's internal / spiritual maturity. 75 questions of the questionnaire must be answered according to the test. The questions were grouped according to five scales (15 questions in one scale), each of which corresponded to one of the levels (stages) of an individual's personal maturity: "infant", "toddler", "child", "teenager / young man" and "adult". The level on which the highest amount of points was received (a positive answer to the question was assigned 1 point) was considered as a level of personal maturity. The level was considered formed when 10 or more points were scored on its scale. If none of the levels scored so many points, then personal maturity was considered undifferentiated. In cases of simultaneous formation of several levels of personal maturity (equal amounts of points on several scales), we gave an opinion on their combination. In essence, the levels of personal maturity corresponded to the levels of spiritual maturity.

Examination of participants of study and subsequent work involved the depersonalization of the obtained materials.

Statistical analysis. The sample size was not previously calculated. Statistical characteristics of the sample are given by finding the arithmetic mean (M) and its standard deviation (S). A 95% confidence interval (95% CI) was used to estimate the scattering of values around the center point. Qualitative binary indicators of the samples were compared by testing the null hypothesis of equality of particles, expressed in percent, ordinal values - by calculating the criterion of conformity of Pearson's chi-square (χ^2) with the Yates correction. The relationship between the studied indicators was established by creating contingency tables (crossstabulation). The criterion for the reliability of statistical estimates was a confidence level with indication of the probability to erroneously reject the null hypothesis (p). The value $p < 0.05$ was accepted as a threshold level. The data of the study were processed using the software product SPSS Statistics Base (Company IBM, USA).

Results

According to Jose Stevens, the level of personal majority "adult" was established among the most of examined persons – 25.71% (144/560). The lowest number of examined persons had the level "infant" – 3.21% (18/560). Almost one-fifth of examined persons had different combinations of personal maturity levels – 20.18% (113/560). Among the latter, the combination of low levels of personal maturity ("infant", "toddler", "child") was found in 141, high levels ("teenager / young man", "adult") – in 35 and multidirectional levels – in 64 out of 560 examined persons.

In order to use for further analysis the combined conclusions about personal maturity not on an aggregate basis, but in essence of their reflection of the subject of research, as well as taking into account a small number of some conclusions about personal maturity ("infant", "toddler"), the association of essentially related levels was conducted and the new conclusions about personal maturity were made:

- undifferentiated level;
- low level ("baby" + "infant");
- medium-low level ("child" + combination "child" and "teenager / young man");
- medium-high level ("teenager / young man" + combination of "teenager / young man" and "adult");
- high level ("adult");
- variously combined level (simultaneous combination of low and high levels of maturity).

The distribution of new levels of personal maturity is given in Fig. 1.

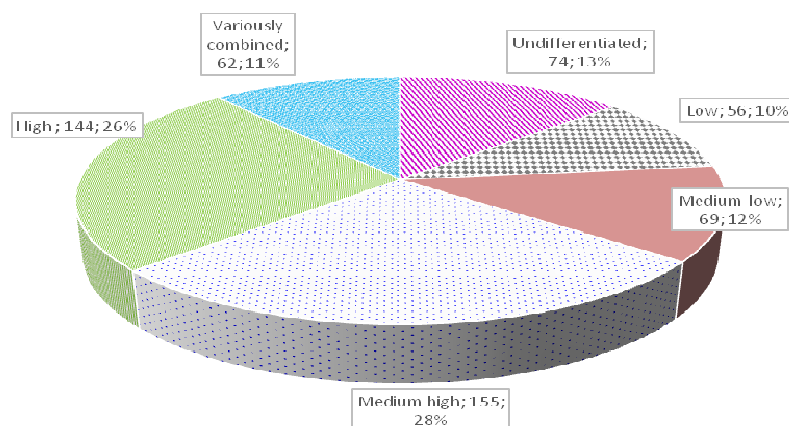


Figure. 1. Distribution of levels of personal maturity among the examined persons according to the authors of the article (n, %)

In general, it may be noted that the formed high levels of personal maturity ("teenager / young man" + "adult" + combination of "teenager / young man" and "adult") amounted to the half of examined persons – 53.39% (299/560), and low levels (" baby " + " infant " + " child " + combination "child" and "teenager / young man"), including undifferentiated level, – amounted to one third of examined persons – 35.54% (199/560).

The distribution of levels of personal maturity depending on sex is specified in Table. 1. Men have the undifferentiated level of maturity – 16.94% (51/301) more than women – 8.88% (23/259) ($p < 0.001$). A larger number of medium-low maturity levels – 17.28% (52/301) was also intrinsic to men. In women, this level of maturity was found in 6.56% (17/259) cases ($p < 0.001$). Women differed significantly from men by a larger number of medium-high levels – 32.82% (85/259) (men – 23.26%, 70/301; $p < 0.01$) and high levels of maturity – 32.05% (83/259) (men – 20.27% , 61/301; $p < 0.05$).

Table 1

Distribution of Levels of Personal Maturity Depending on Sex of Examined Persons

($\chi^2 = 36.06, p=0.00000$)

Maturity levels	Men (n=301)		Women (n=259)	
	n	%	n	%
Undifferentiated	51	16.94	23	8.88***
Low	37	12.29	19	7.34
Medium-low	52	17.28	17	6.56***
Medium-high	70	23.26	85	32.82**
High	61	20.27	83	32.05*
Variously combined	30	9.97	32	12.36

Note. Statistically significant differences between the samples with the probability of erroneous estimation: * – $p < 0.05$, ** – $p < 0.01$, *** – $p < 0.001$.

Table 2 contains the conclusions about a personal maturity depending on the age of examined persons. It may be noted that young people (under 18 years) were less likely to have undifferentiated and low levels of maturity – in both cases 5.45% (3/55) compared to persons over 59 years, – in both cases 24.24% (16/66) ($p < 0.01$). A larger number of medium-high levels of maturity was also common in young people – 38.18% (21/55), which differed significantly from persons older than 59 years – 16.67% (11/66) ($p < 0.01$).

Table 2

Distribution of Levels of Personal Maturity Depending on Age of Examined persons

($\chi^2 = 51.15, p=0.00001$)

Maturity levels	Age periods according to the WHO							
	< 18 years (n=55)		18-44 years (n=333)		45-59 years (n=103)		> 59 years (n=66)	
	n	%	n	%	n	%	n	%
Undifferentiated	3	5.45	40	12.01	15	14.56	16	24.24
Low	3	5.45	20	6.01	17	16.50	16	24.24
Medium-low	8	14.55	50	15.02	6	5.83	3	4.55
Medium-high	21	38.18	98	29.43	25	24.27	11	16.67
High	13	23.64	88	26.43	31	30.10	12	18.18
Variously combined	7	12.73	37	11.11	9	8.74	8	12.12

Analysis of the dependence of levels of personal maturity on a body length in examined persons did not reveal a relationship between these indicators (Table 3).

Table 3

Distribution of Levels of Personal Maturity Depending on Body Length of examined persons

($\chi^2 = 20.38, p=0.1575$)

Maturity levels	Body length							
	< 160 cm (n=27)		160-169 cm (n=138)		170-179 cm (n=187)		> 179 cm (n=124)	
	n	%	n	%	n	%	n	%
Undifferentiated	2	7.41	15	10.87	23	12.30	23	18.55
Low	0	0.00	17	12.32	22	11.76	14	11.29
Medium-low	2	7.41	9	6.52	23	12.30	19	15.32
Medium-high	7	25.93	44	31.88	53	28.34	25	20.16
High	10	37.04	34	24.64	44	23.53	30	24.19
Variously combined	6	22.22	19	13.77	22	11.76	13	10.48

While analyzing the relationship between the levels of personal maturity and the body weight of examined persons (Table 4), a significant predominance of the number of low maturity levels in persons with a body mass of 90-99 kg – 20.93% (9/43) compared with persons with body mass less than 60 kg – 4.65% (4/86) ($p < 0.05$) has been established. Moreover, the larger number of medium-high levels of maturity is intrinsic to persons weighing less than 60 kg – 38.37% (33/86), which differed significantly from persons weighing 70-79 kg – 23.81% (25/105) ($p < 0.05$) and 80-89 kg – 23.30% (24/103) ($p < 0.05$).

Table 4

Distribution of Levels of Personal Maturity Depending on Body Weight of Examined Persons ($\chi^2 = 4.63$, $p=0.0950$)

Maturity levels	Body weight											
	< 60 kg (n=86)		60-69 kg (n=120)		70-79 kg (n=105)		80-89 kg (n=103)		90-99 kg (n=43)		> 100 kg (n=20)	
	n	%	n	%	n	%	n	%	n	%	n	%
Undifferentiated	7	8.14	15	12.50	14	13.33	15	14.56	7	16.28	5	25.00
Low	4	4.65	11	9.17	11	10.48	16	15.53	9	20.93	2	10.00
Medium-low	5	5.81	14	11.67	18	17.14	11	10.68	4	9.30	1	5.00
Medium-high	33	38.37	33	27.50	25	23.81	24	23.30	11	25.58	3	15.00
High	29	33.72	31	25.83	24	22.86	22	21.36	9	20.93	4	20.00
Differently combined	8	9.30	16	13.33	13	12.38	15	14.56	3	6.98	5	25.00

Discussion

Summarizing the obtained results and using only statistically significant data, it can be stated that according to Jose Stevens (2019) the «adult» level of personal maturity was established in 25.7% (144/560), «teenager/young man – in 21.45 (120/560), «child» – in 10.2% (57/560), «toddler» – in 6.1% (34/560) and «infant» – in 3.2% (18/560) of examined persons, and a third of examined persons (33.4% (187/560)) had different combinations or undifferentiated levels of personal maturity. It was not possible to compare the obtained results with other similar data because the literary sources on determining the level of spirituality according to this author were not found in the databases of scientific information.

As previously noted, a third of those examined persons did not meet the five levels of personal maturity proposed by Jose Stevens (2019). In order to use all the obtained data and compare them with the studies of other authors, we have reformatted the existing levels (combined by similarity, created new ones) taking into account their qualitative differences and reflection of the degree of change from minimum to maximum ordinal gradation. In essence, the levels of personal maturity were considered by us as levels of spiritual development. Using our own approach to the interpretation of levels of personal maturity / spirituality, it was found that high levels of personal maturity / spirituality ("high" + "medium-high") dominated among the examined persons, who in general amounted to half of those examined persons – 53.39% (299/560), and low levels, including undifferentiated one, – were intrinsic to more than a third of those examined persons (35.54% (199/560)).

The developer of the concept of levels (stages) of personal maturity of man, Jose Stevens (2019) believed that personal maturity does not always correspond to the biological age (period of development) of man. The personal maturity of some adults may correspond to the level of "teenager", "child" or even "infant", i.e to lower levels than required by their age. In our study, this is not confirmed and shown that age maturity does not fully correspond to an internal personal maturity / spirituality of man. Thus, the predominance of undifferentiated and low levels of personal maturity was more common in older persons (aged 60 years and over) than in young people (under 18 years). Our data are consistent with the results of a study by Silva et al. (2019), which also indicated an inverse relationship between the spirituality / religiosity and the age of cancer patients and contradicted a study by Ricci-Allegra (2018), which showed a direct correlation between spirituality and age ($p = 0.208$, $p = 0.039$) in nurses, a study by Musarezaie, Naji-Esfahani, Ghasemi, Karimian, & Ebrahimi (2013), which reported such a direct relationship in cancer patients, and a study by Reyes-Ortiz, Payan, Altamar, Gomez, & Koenig (2019), which reported that older people were more religious compared to younger ones.

In the course of investigation, we have found that women have a larger number of high levels of personal maturity compared to men. Besides that an undifferentiated level of maturity is more frequently registered in men. The results obtained by us about the existence of a relationship between spirituality and sex are consistent with a number of studies on that subject (Deb, McGirr, & Sun, 2016; Feizi, Nasiri, Bahadori, Amiri, & Mirhosseini, 2020). The predominance of the level of spirituality/ religiosity in women in comparison with men has been reported in other studies too. An international study involving 451 participants with advanced and incurable cancer showed that the level of spirituality in women was better than in men (Rohde et al., 2019). Similar results were found by Lewis, Salins, Rao, & Kadam (2014) also in cancer patients – the level of spiritual well-being was significantly higher in women compared to men. Kazeminezhad, Tarjoman, Borji (2020) showed the dependence between the performance of prayer and sex, education of sick people. Jacob Kendall (2019) established that religious activities have a stronger relationship to health than other health activities, especially for women. Reyes-Ortiz, Payan, Altamar, Gomez, & Koenig (2019) showed that women were more religious than men. Studying the state of spirituality in adolescents Yuen Celeste Y. M. (2015) found that girls have a higher level of spirituality than boys.

In our study we have not established that personal maturity was related to body length, however it was related to body weight: people with body weight of 90-99 kg had a lower level of maturity compared to people who weighed less than 60 kg. Besides that a larger number of medium-high levels of maturity was more common in people weighing less than 60 kg compared to people with higher body weight. Similar inverse

relationship between spirituality and body weight was also reported by Brintz et al. (2017) who found that certain dimensions of spiritual well-being and frequency of non-organizational religious activities are weakly but significantly related to one or more components of the metabolic syndrome, including waist circumference, diastolic blood pressure, and systolic blood pressure. These authors pointed out that the overall rate of spiritual well-being was significantly inversely related to waist circumference. Sanlier, Pehlivan, Sabuncular, Bakan, & Isguzar (2018) also provide the data about the existence of inverse relationship between body mass index and human spiritual development, and Boisvert, & Harrell (2013) suggest that higher spirituality is associated with lower level of symptoms and signs of eating disorder. On the other hand, there are the data about the direct relationship between the level of spirituality and body weight, which contradicts our research results. Thus, Bharmal et al. (2013) found that Asian Indians had a significant direct relationship between religiosity and body mass index – such individuals were 1.53 times more likely to be overweight or obese than immigrants with low religiosity. Godbolt, Vaghela, Burdette, & Hill (2018) explored the relationship between attendance at religious events and three indicators of body weight: overall body mass index, waist circumference, and waist-to-height ratio, and found that participation in religious activities was directly related to body weight of black women and is not related to body weight among men.

Conclusions

1. Among the examined persons, there are high levels of personal maturity / spirituality found in 53.39% (299/560) cases, and low levels, including undifferentiated one, – in 35.54% (199/560) cases. The inner personal maturity / spirituality of almost a third of the respondents does not fully correspond to age maturity.

2. The relationship of level of personal maturity / spirituality of man to sex, age and body weight was established. No association of personal maturity with body length was identified. Women are more likely to have a larger number of high levels of personal maturity / spirituality compared to men, among whom the undifferentiated level is registered more frequently too. Older persons (aged 60 years and over) are characterized by the predominance of undifferentiated and low levels of personal maturity compared to young people (less than 18 years). A number of medium-high levels of maturity prevails among the persons having a body mass less than 60 kg compared to people with a higher body weight.

Conflict of interest. The authors declare that there is no conflict of interest.

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